What I claim is:

1. In a process for the manufacture of financial data using the endogenous variables of a financial security and for estimating change in the security's price given change in its yield with respect to time, which comprises implementing the applicable formulation of Formula 1.1:

for a fixed-income security, taking inputs of the security's maturity date, coupon and price and calculating the security's maturity in years and utilizing the processing Formulas 1.2, 1.3 and 1.4, engineering the data values of the security's price sensitivities, utilizing the engineered data to evaluate the security and to estimate the security's change in price per the Formula 1.5a, and creating the processed data to manage, trade, value, test or hedge the security.

2. In the invention of claim 1, which further comprises using endogenous variables of a collection of individual securities, calculating aggregate values for a portfolio of securities, being its accrued interest, its present value, its implied price, the portfolio coefficient for each security, plus the portfolio yield, duration and convexity as per Formulas 1.2, 1.3 and 1.4, and utilizing the determined data to evaluate the portfolio and to estimate the portfolio's change in its implied price per the Formula 1.5 and to manage, trade, value, test and hedge the portfolio.

3. In the invention of claim 1, which further comprises assembling spreadsheets, programs or databases, listing, housing or encoding process and data in print and digital memory.

4. In the invention of claim 1, which further comprises a data processing system, this comprising an analytic valuation engine processing data from a feed, memory or simulation, and from which the engineered data values are input into an arbitrage engine, which has means:

A) updating the market price of security and computing market yield, Formula S.2;

B) computing arbitrage differential between market yield and yield of Formula 1.2;

C) sorting arbitrage differential opportunities according to arbitrage profitability;

D) recalculating current pricing of most profitable transaction;

E) executing arbitrage transaction of most profitable;

F) updating to storage all inventory of transactions;

G) displaying inventory and trades are user prompt.

5. In an article of manufacture, a financial security, a replicated equivalent primary security, in which calibrated measures of individual primary financial securities are combined to replicate the cash flows, price or sensitivities of a single individual primary financial security.

6. In the invention of claim 5, which further comprises a manufacturing process, in which a replicant security is engineered for matching the cash flows of a target primary security:

A) one individual coupon-bearing security is selected that matures at the particular time, for each date of the targeted single individual primary security's cash flows dating to expiration;

B) the set of coupon-bearing securities for all cash flow dates are entered in simultaneous equations, each individual equation held as equivalent to the cash flow due that particular date;

C) the set of equations are solved, returning the engineered composition for a replicant, the correct proportional and actual amounts for each of the securities comprising the replicant, from which the price and sensitivities of the replicant financial security are readily determined.

7. In the invention of claim 5, which further comprises a manufacturing process, in which a replicant financial security is engineered as matching the cash flows of a target security:

A) one individual non-coupon security is selected that matures in time, and equal face value, for each of the targeted single individual primary security's cash flows date to expiration;

B) each of the individual non-coupon securities for the targeted security's cash flows are engineered as having face value equal to the particular cash flow at particular date by the target.

C) this set of securities is combined, returning the engineered composition for a replicant, the correct proportional and actual amounts for each of the securities comprising the replicant, from which the price and sensitivities of the replicant financial security are further determined.

8. In the invention of claim 5, which further comprises a replicated equivalent primary securities generator, which has means:

A) to input the endogenous variables of the targeted single primary security;

B) to set the parameter of the target to be matched in the replicant;

C) to engineer possible replicants from available pool of single primary securities;

D) to display alternate replicant in composition and its price, yield and duration;

E) to send alternate replicants to arbitrage engine for arbitrage comparisons;

F) to select any specific replicant to be manufactured per its composition;

G) to execute the manufacture according to the engineered composition;

H) to deliver replicant and to update storage and to display at request.

9. In the invention of claim 5, which further comprises a data processing system, this comprising an arbitrage engine into which engineered data of possible replicants are input, which has means:

A) updating the pricing of possible replicants and target;

B) computing arbitrage differential in price between replicants and target;

C) sorting arbitrage opportunities according to profitability;

D) rechecking price of most profitable transactions;

E) executing arbitrage transaction of most profitable;

F) updating to storage all inventory of transactions;

G) displaying possible and actual inventory and trades.

10. In a method and process for the analysis of default risk in insured commercial depository banks, on a consolidated industry basis, and on case by case basis, which comprises:

A) taking data values in time series for the following financial criterion:

a) total deposits;

b) total assets;

c) interest-bearing deposits;

d) interest-bearing liabilities;

B) establishing values for the operating ratios of the financial criterion:

a) total deposits over interest-bearing assets;

b) interest-bearing deposits over interest-bearing assets;

c) total deposits over total assets;

d) interest-bearing deposits over interest-bearing liabilities;

C) establishing values for the operating ratios of the financial criterion:

a) total deposits over interest-bearing liabilities;

b) interest-bearing assets over interest-bearing liabilities;

D) graphing the ratios of the financial criterion in combination for analysis.

11. In the invention of claim 10, which further comprises, on aggregated industry basis, taking the ratio of closed deposits over total deposits over time and, on separate graphical scale, graphing the values of the ratio in combination with operating ratios of the financial criterion.

12. In a modified martingale conditional probability lattice, useful for the valuation of any multi-state theta variable, and lognormal, financial security with a probability of any occurrence such as default or loss, and useful for the valuation of callable investment securities, which comprises incorporating loss development and recovery as not occurring simultaneous to a loss, which further comprises:

A) assigning variables for the binary lattice:

a) of the martingale for a distinct time interval;

b) of the distinct time interval;

c) of the dates of occurrence of loss or default;

d) of the experienced value at a given date;

e) of the settled value after recovery and development;

f) of the conditional probability of recovery, loss development;

g) of the risk-neutral expectation of the settled value at forward date;

B) implementing a binary lattice using the variables and weighted probability paths for possible occurrence of no default and loss and of default and loss, which further comprises:

a) at first node, time zero, experienced value is full at identity of value;

b) two probability paths to time one, one being identity minus the martingale times length of distinct time interval, where there is no default or loss, the other path probability being the martingale times the distinct time interval, where there is a default or loss, if the latter, then the experienced value is equal to the expected settled value after recovery;

c) from the second node, time one, probability path of no default or loss, the above step is repeated to time two;

d) from the second node, time one, probability path of default or loss, two probability paths to time two, one being the experience of no recovery, equal to the current expected settled value after any future recovery, minus expenses; the other path, the experience of recovery, equal in value to the settled value of recovery and any expected future recovery.

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